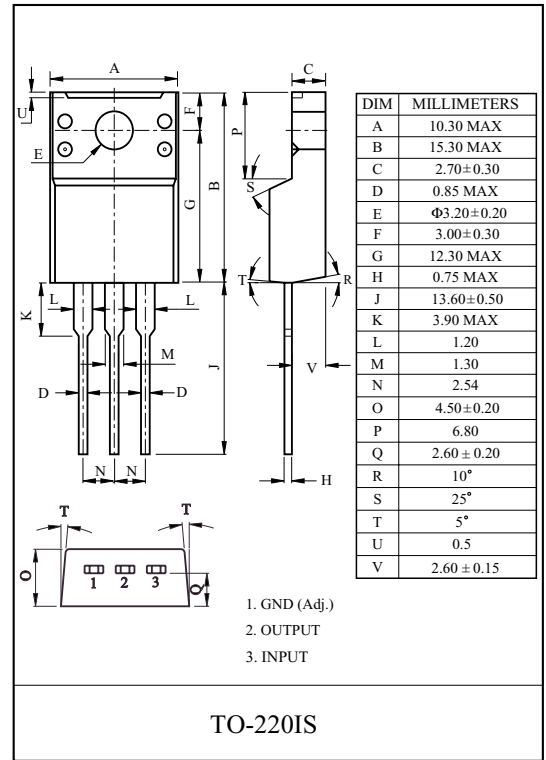


LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR

The KIA1117PI × × is a Low Drop Voltage Regulator able to provide up to 0.8A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=0.8A$)
- Very Low Quiescent Current : 4.2mA/Typ.
- Output Current up to 0.8A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- A minimum of $10\mu F$ for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ.
- Temperature Range : -30 °C ~ 125 °C



LINE UP

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117PI00	Adjustable (1.25~10V)	TO-220IS
KIA1117PI15	1.5	
KIA1117PI18	1.8	
KIA1117PI25	2.5	
KIA1117PI28	2.85	
KIA1117PI33	3.3	
KIA1117PI50	5.0	

MAXIMUM RATINGS ($T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	10	V
Output Current	I_{OUT}	0.8	A
Power Dissipation 1 (No Heatsink)	P_{D1}	2.0	W
Power Dissipation 2 (Infinite Heatsink)	P_{D2}	20.8	W
Operating Temperature	T_{opr}	-30 ~ 125	
Storage Temperature	T_{stg}	-55 ~ 150	

KIA1117PI00~KIA1117PI50

Fig.1 Application Circuit-1 (Fixed-Type)

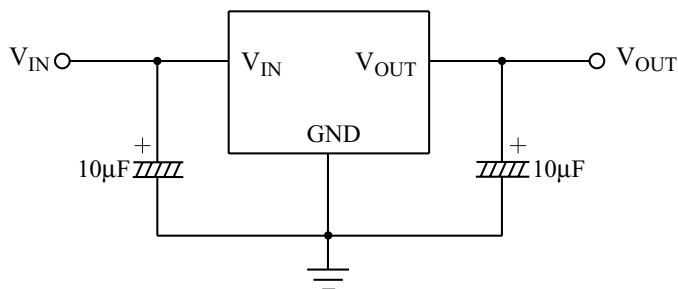
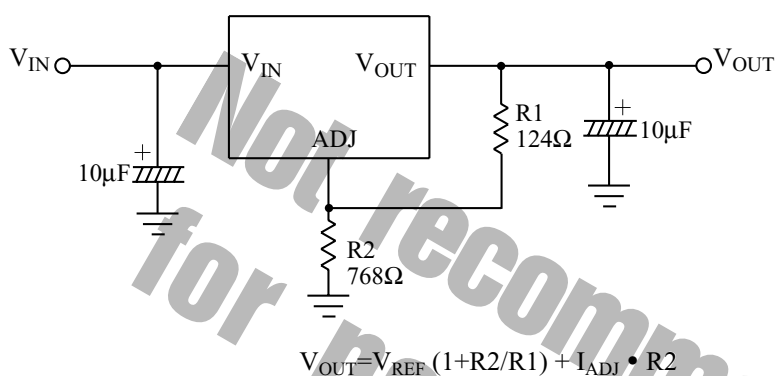


Fig.2 Application Circuit-2 (Adjustable-Type)



ELECTRICAL CHARACTERISTICS

KIA1117PI00 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	1.225	1.25	1.275	V
	V_{OUT2}	$10mA$ I_{OUT} $0.8A$, $V_{OUT} + 1.5V$ V_{IN} $10V$	1.20	1.25	1.30	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} $10V$, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA$ I_{OUT} $0.8A$, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Adjustable Pin Current	I_{ADJ}	$V_{IN} = V_{OUT} + 1.5V$	-	35	-	µA
Minimum Load Current	I_{MIN}	$V_{IN} = V_{OUT} + 1.5V$	10	-	-	mA
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, $10Hz$ f $10kHz$	-	100	-	µVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

KIA1117PI00~KIA1117PI50

ELECTRICAL CHARACTERISTICS

KIA1117PI15 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	1.47	1.5	1.53	V
	V_{OUT2}	10mA I_{OUT} 0.8A, $V_{OUT} + 1.5V$ V_{IN} 10V	1.44	1.5	1.56	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} 10V, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	10mA I_{OUT} 0.8A, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, 10Hz f 10kHz	-	100	-	μV_{rms}
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117PI18 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	1.764	1.8	1.836	V
	V_{OUT2}	10mA I_{OUT} 0.8A, $V_{OUT} + 1.5V$ V_{IN} 10V	1.728	1.8	1.872	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} 10V, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	10mA I_{OUT} 0.8A, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, 10Hz f 10kHz	-	100	-	μV_{rms}
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

KIA1117PI00~KIA1117PI50

ELECTRICAL CHARACTERISTICS

KIA1117PI25 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	2.45	2.5	2.55	V
	V_{OUT2}	10mA I_{OUT} 0.8A, $V_{OUT} + 1.5V$ V_{IN} 10V	2.4	2.5	2.6	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} 10V, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	10mA I_{OUT} 0.8A, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, 10Hz f 10kHz	-	100	-	μV_{rms}
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117PI28 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	2.793	2.85	2.907	V
	V_{OUT2}	10mA I_{OUT} 0.8A, $V_{OUT} + 1.5V$ V_{IN} 10V	2.736	2.85	2.964	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} 10V, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	10mA I_{OUT} 0.8A, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, 10Hz f 10kHz	-	100	-	μV_{rms}
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

KIA1117PI00~KIA1117PI50

ELECTRICAL CHARACTERISTICS

KIA1117PI33 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	3.234	3.3	3.366	V
	V_{OUT2}	10mA I_{OUT} 0.8A, $V_{OUT} + 1.5V$ V_{IN} 10V	3.168	3.3	3.432	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} 10V, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	10mA I_{OUT} 0.8A, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, 10Hz f 10kHz	-	100	-	μV_{rms}
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117PI50 (Unless otherwise specified, $T_j = -30 \sim 125$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25$	4.9	5	5.1	V
	V_{OUT2}	10mA I_{OUT} 0.8A, $V_{OUT} + 1.5V$ V_{IN} 10V	4.8	5	5.2	
Line Regulation	Reg Line	$V_{OUT} + 1.5V$ V_{IN} 10V, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	10mA I_{OUT} 0.8A, $V_{IN} = V_{OUT} + 2.0V$	-	15	30	mV
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	4.2	10	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	4.2	10	
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, 10Hz f 10kHz	-	100	-	μV_{rms}
Sort Circuit Current Limit	I_{SC}	$V_{IN} = V_{OUT} + 2.0V$	1.1	-	-	A
Ripple Rejection	$R \cdot R$	$I_{OUT} = 40mA$, $f = 120Hz$, $V_{ripple} = 1V_{p-p}$ $V_{IN} = V_{OUT} + 3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 0.8A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.2	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

KIA1117PI00~KIA1117PI50

Fig. 3 $V_D - I_{OUT}$

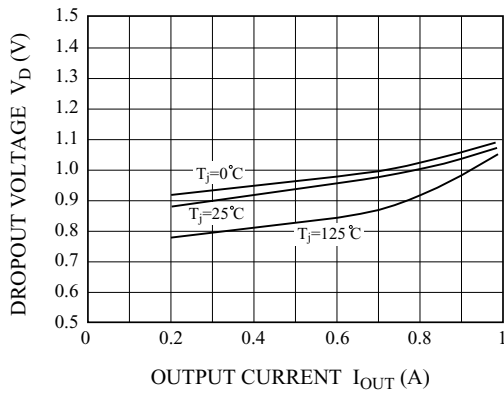


Fig. 4 $V_{REF} - T_j$

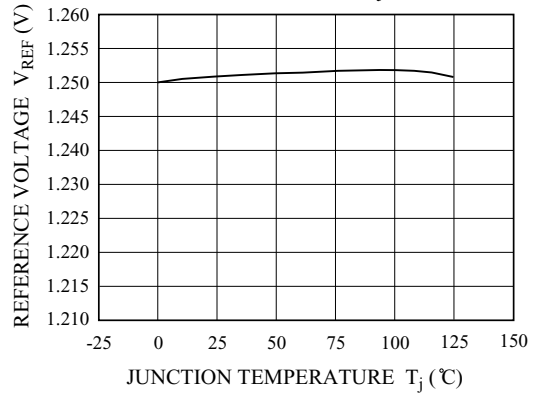


Fig.5 $I_{OUT(MIN)} - T_j$

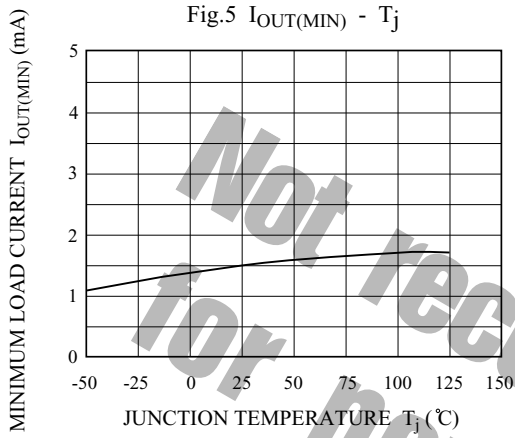


Fig.6 $I_{ADJ} - T_j$

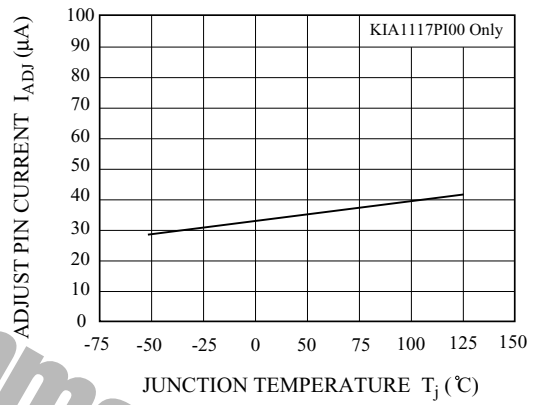


Fig.7 $I_{SC} - T_j$

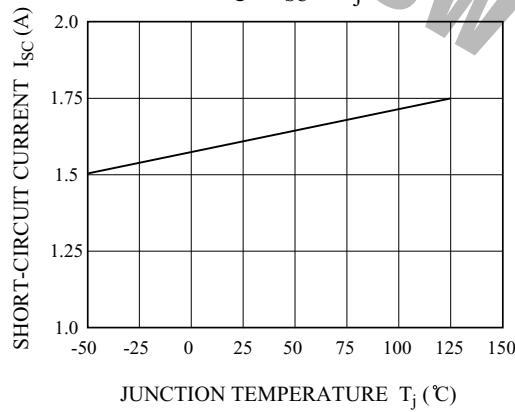


Fig.8 R.R-f

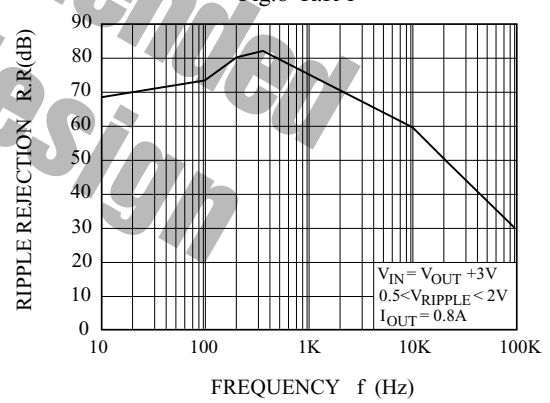


Fig.9 $P_D - T_a$

